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**EUROPEAN PATENT APPLICATION**

② Application number: 87305691.5

Int. Cl.<sup>4</sup>: **F 41 C 27/00**

② Date of filing: 25.06.87

**(30) Priority: 26.06.86 GB 8615611**

④3 Date of publication of application:  
07.01.88 Bulletin 88/01

**(84)** Designated Contracting States:  
**AT BE CH DE FR GB IT LI LU NL SE**

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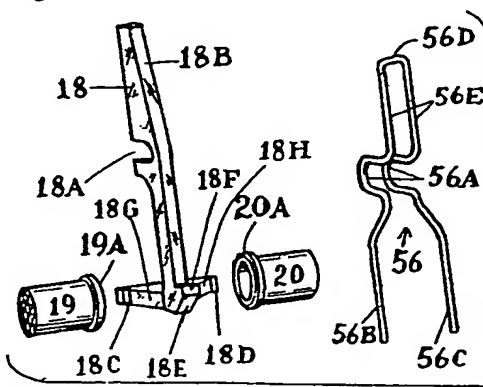
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⑤4 Firearm magazine catch.

**(57)** This invention relates to a firearm having an improved catch arrangement for retaining a magazine in a well in a grip portion of the firearm. A single spring (56) operates simultaneously pivotally to urge a catch member (18) into a magazine engaging position, to retain the catch member on a pivot and to urge outwardly catch release buttons (19 and 20) which can be depressed to engage inclined cam surfaces (18G and 18H) to cause retraction of the catch (18F) from a magazine detent engaging position.

**Fig.3**



## Description

"FIREARM MAGAZINE CATCH"

This invention relates to a fire arm having an improved magazine catch for retaining a magazine therein. Whilst applicable to other forms of firearm it is of particular use in firearms of the self loading pistol type, having a reciprocating breech block slide mounted on slide rails upon a frame which contains a barrel. Such firearms are adapted to have a cartridge box magazine held within the grip section of the frame and are provided with a suitable catch to retain and release the cartridge magazine from the grip portion of the frame.

It is an object of the present invention to provide a firearm with a cartridge magazine retaining catch that is operable from either side of the pistol with substantially equal pressure to release the cartridge magazine for removal from the firearm. The retaining and releasing catch of the present invention is of simple construction and cheap to manufacture and, as will be appreciated from the later detailed description, is such as not to require specialised tools to assemble or disassemble.

According to the present invention there is provided a fire arm comprising a frame provided with a grip portion having a space therein adapted to receive a cartridge magazine of the box type having detent means in a forwardly or rearwardly facing surface thereof, a catch member mounted for pivotal movement about an axis extending transversely of said frame for movement of a catch thereon into and away from a detent engaging position in which it is adapted to engage with the detent of a magazine when such magazine is received in said space, said catch member extending between two side walls of the frame which are pierced with opposite holes, a pair of release buttons, one in each hole, each having a flange at its inner end retaining it in its hole, the inner ends of the buttons engaging respective inclined cam surfaces on the catch member whereby upon pressing of either button into the frame the catch member will pivot to move the catch away from its detent engaging position, and a catch return spring comprising two legs engaging the frame joined by a bight portion, the bight portion engaging the catch member to urge the catch member to pivot towards its catch engaging position and the two legs also engaging respective ones of the buttons to urge them outwardly to project through the holes.

Preferably the catch member is pivotally mounted on a pin extending transversely of the frame and while the pivot catch member preferably is slotted to receive the pivot pin it is possible, alternatively, to have the pin removably mounted in the frame, the pin passing through a hole in the catch member.

The preferred construction uses buttons of circular cross section which each have a chamfered flange extending around the entire periphery of their inner end as the retaining flange. These are particularly easy to mount in position and are of identical construction to simplify manufacture.

In a space saving format the catch member is elongated with two limbs extending respectively

upwardly and downwardly from the pivot axis. The upper limb is engaged by the bight portion of the spring and the lower limb is provided with the catch and the inclined cam surfaces. The catch member thus extends substantially vertically and occupies little fore and aft space in the firearm frame.

Conventionally the magazine detent would be comprised by an aperture in the forwardly facing surface of the magazine with the catch member extending into a space in the frame immediately before the grip portion space.

The invention will be further described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a left side elevational view of a self loading, semi-automatic pistol embodying the invention and having a cartridge magazine retaining and releasing catch;

Figure 2 is a partial view of the pistol, partly in elevation and partly in longitudinal vertical section, showing the magazine catch mounted on the pistol frame by means of a transverse pivot pin.

Figure 3 is an exploded perspective view of the magazine catch, two identical magazine catch cam buttons and a magazine catch spring, all viewed from the rear left;

Figure 4 is a partial perspective view of the pistol frame viewed from the rear left showing the frame interior;

Figure 5 is a partial view of the interior of the pistol viewed from the rear of the magazine well;

Figure 6 is a perspective view of the trigger guard;

Figure 7 is a partial longitudinal transverse sectional view taken along the centre line of the cam button receiving holes with the catch member and the magazine catch spring removed;

Figure 8 shows partial longitudinal transverse sectional views taken along the centre line of the cam button holes, the upper view showing the action of the magazine catch when the left cam button is depressed and the lower view showing the action when the right cam button is depressed;

Figure 9 is a perspective view of a magazine to be used in the pistol; and

Figure 10 is a partial perspective view of the pistol frame, viewed from the front, with the trigger guard and magazine catch removed to show the front of an inserted magazine.

Figure 1 shows the pistol as comprising a frame 1 having a slide 2 mounted thereon. The frame has a grip portion or section 1A as a downward continuation of the frame rear section and the magazine is insertable into a grip section well or space from the bottom of the butt. The frame has its lower forward section 1C cut out to accommodate a trigger guard unit 4, the trigger guard unit having cutouts 4A which

locate upon a transverse frame pin ID, the trigger guard being thrust firmly upon pin ID by a spring carried in the forward section IE of the frame. The serrated outer end of the left magazine catch cam button I9 is visible in Figure I at the lower rear of the trigger guard frame section.

As can be seen in Figure 4 the frame pin ID has its centre section rebated to have a smaller diameter and upon this smaller diameter section is mounted the magazine catch I8 by means of a cutout I8A shown in Figure 3 which receives the centre section of the pin ID. While this is the preferred construction for ease of assembly and disassembly it will be appreciated that if the pin ID is made removable, instead of a slot I8A the catch member I8 can be provided with a through hole to receive the pin ID.

The frame has two transverse holes IF and IG passing through the frame immediately behind the lower rear of the trigger guard when the trigger guard is installed. The holes IF and IG open into the cut out space IH in the frame. Identical cam buttons I9 and 20 are inserted into the holes IF and IG. Each cam button has an inner flanged end I9A and 20A. The flanged ends are engageable with the inside of the frame to limit the extent to which the buttons can project to the outside of the frame.

As can be seen in Figure 3 the magazine catch I8 is elongated and comprises an upwardly extending limb provided with a rearwardly facing surface I8B and a downwardly extending limb carrying, at its lower end, a catch or hook I8H provided with a downwardly facing cam surface I8E. The lower limb also is provided with oppositely facing inclined cam surfaces I8G and I8H to co-operate with the chamfered flanges I9A and 20A of the buttons I9 and 20 respectively. Magazine catch lugs I8C and I8D are provided at the ends of the cam surfaces for limiting movement of the catch into its magazine engaging position. The magazine catch spring 56 comprises two legs 56B and 56C joined by a transverse bight portion 56B. The upper portion 56E of the spring is connected via loops 56A with the free ends of the legs 56B and 56C.

The magazine catch spring 56 is assembled into the pistol with loops 56A around the frame pin ID, each loop being adjacent to the sides of the magazine catch, and the limbs 56 and 56A pass down the front of the magazine well to rest against the frame shelf IJ, Figure 4, which comprises a rear surface of the front of the grip portion of the frame. The top bight portion 56D of the magazine catch spring abuts against the surface I8B of the magazine catch and under torsion will pivot the magazine catch member around pin ID. The magazine catch lugs I8D and I8C contact the periphery of the cam button flanges to prevent the magazine catch from protruding further than necessary into the frame magazine well.

Upon inserting the magazine into the frame magazine well, the magazine front lip 47A, Figure 9, will impinge upon the magazine catch cam surface I8E to rotate the catch member against torsion of the upper portion I5E of the catch spring. When a detent comprised by a catch port 47B in the front of the magazine becomes adjacent the catch I8F, the catch

will enter the catch port to retain a magazine in its fully inserted position, as shown in Figure 2.

In order to release the magazine from the piston, either cam button I9 or 20 can be pressed inwardly. The chamfered inner edge I9B or 20B of whichever, or both, cam buttons press on respective cam surface I8G and I8H to cam the magazine catch lower portion I8G forwardly away from the magazine, against the spring torsion of the magazine catch spring, so that when the magazine catch is clear of the magazine catch port, the magazine can be removed downwardly from the grip portion of the pistol.

The action of the cam buttons is shown in Figure 8. It will be seen that the magazine catch spring legs 56B and 56C urge outwardly away from each other under spring tension and abut against each cam button inner rim face, as shown in Figure 5. Figure 8 shows the left cam button being forced inwardly in the top illustration, and the right cam button being applied in the lower illustration. In both applications the respective left or right spring leg is forced inwards by the adjacent cam button and upon pressure being released from the outer surface via the cam button the respective spring leg will tend to force the adjacent cam button outwardly while the upper part of the magazine catch spring will force forward the top part of the magazine catch member to return the magazine catch to its rest, detent engaging, position.

To disassemble the magazine catch assembly, the magazine catch spring is sprung off the frame pin and removed and the magazine catch can then be removed from the frame pin. The cam buttons are pushed into the frame cutter space IH for removal. Figure 7 shows the clearance in the frame cut out to allow removal of the cam buttons once the catch member has been removed.

While the invention has been described in connection with a semi-automatic pistol, it will be appreciated that it can be applied to other small arms and thus while, conveniently, the retaining spring and catch is shown as engaging the forwardly facing surface of the magazine 47, it will be appreciated that in alternative constructions it could be arranged to engage the rear surface although normally, especially in a pistol type construction, the present invention provides a particularly simple and space saving arrangement more suitably provided in front of the magazine receiving well space.

In general the terms top and bottom, left and right refer to the pistol when held in the hand normally by the grip with the pistol being viewed from the rear.

## Claims

1. A fire-arm comprising a frame (I) provided with a grip portion (IA) having a space therein adapted to receive a cartridge magazine (47) of the box type having detent means (47B) in a forwardly or rearwardly facing surface thereof, and a catch member (I8) mounted for pivotal movement about an axis (IO) extending trans-

versely of said frame for movement of a catch thereon into and away from a detent engaging position in which it is adapted to engage with the detent of a magazine when such magazine is received in said space, characterised in that said catch member extends between two side walls (1C,1H) of the frame which are pierced with opposite holes (1F,1G), a pair of release buttons (19,20), one in each hole, each has a flange (19A,20A) at its inner end retaining it in its hole, the inner ends of the buttons engaging respective inclined cam surfaces (18G,18H) on the catch member whereby upon pressing of either button into the frame the catch member will pivot to move the catch away from its detent engaging position, and a catch return spring (56) comprises two legs (56B,56C) engaging the frame joined by a bight portion (56D), the bight portion (56D) engaging the catch member (18B) to urge the catch member to pivot towards its catch engaging position and the two legs also engaging respective ones of the buttons to urge them outwardly to project through the holes.

2. A fire-arm according to claim 1, characterised in that the catch member (18) is pivotally mounted on a pin (1D) extending transversely of the frame.

3. A fire-arm according to claim 2, characterised in that the catch member is mounted on a reduced diameter central section of said pin.

4. A fire-arm according to claim 2 or 3, characterised in that the catch member is slotted (at 18A) to receive the pivot pin.

5. A fire-arm according to claim 2, characterised in that the pin is removably mounted in the frame and passes through a hole in said catch member.

6. A fire-arm according to any preceding claim, characterised in that the buttons (19,20) are of circular cross section and each has a chamfered flange (18A,20A) extending around the entire periphery of its inner end as the retaining flange.

7. A fire-arm according to any preceding claim, characterised in that the catch member is elongated with two limbs extending respectively upwardly and downwardly from the pivot axis, the upper limb (18B) being engaged by said bight portion (56D) of the spring (56) and the lower limb being provided with said catch (18F) and said inclined surfaces (18G,18H).

8. A fire-arm according to any preceding claim, characterised in that it is adapted to receive a magazine (47) in which the detent is comprised by an aperture (47B) in the forwardly facing surface thereof, the catch member extending into a space in the frame immediately before the grip portion space.

9. A fire-arm according to claim 8, characterised in that the legs (56B,56C) of the

spring engage a rear surface of the front of the grip portion of the frame.

10. A fire-arm according to any preceding claim, characterised by being of the self-loading pistol type.

Fig. 1

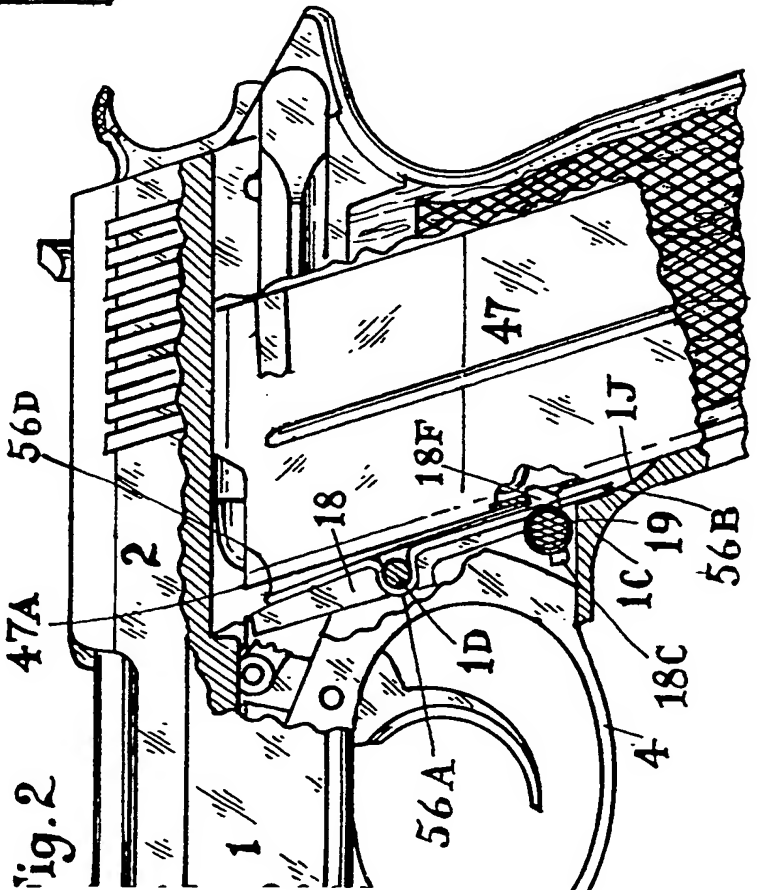
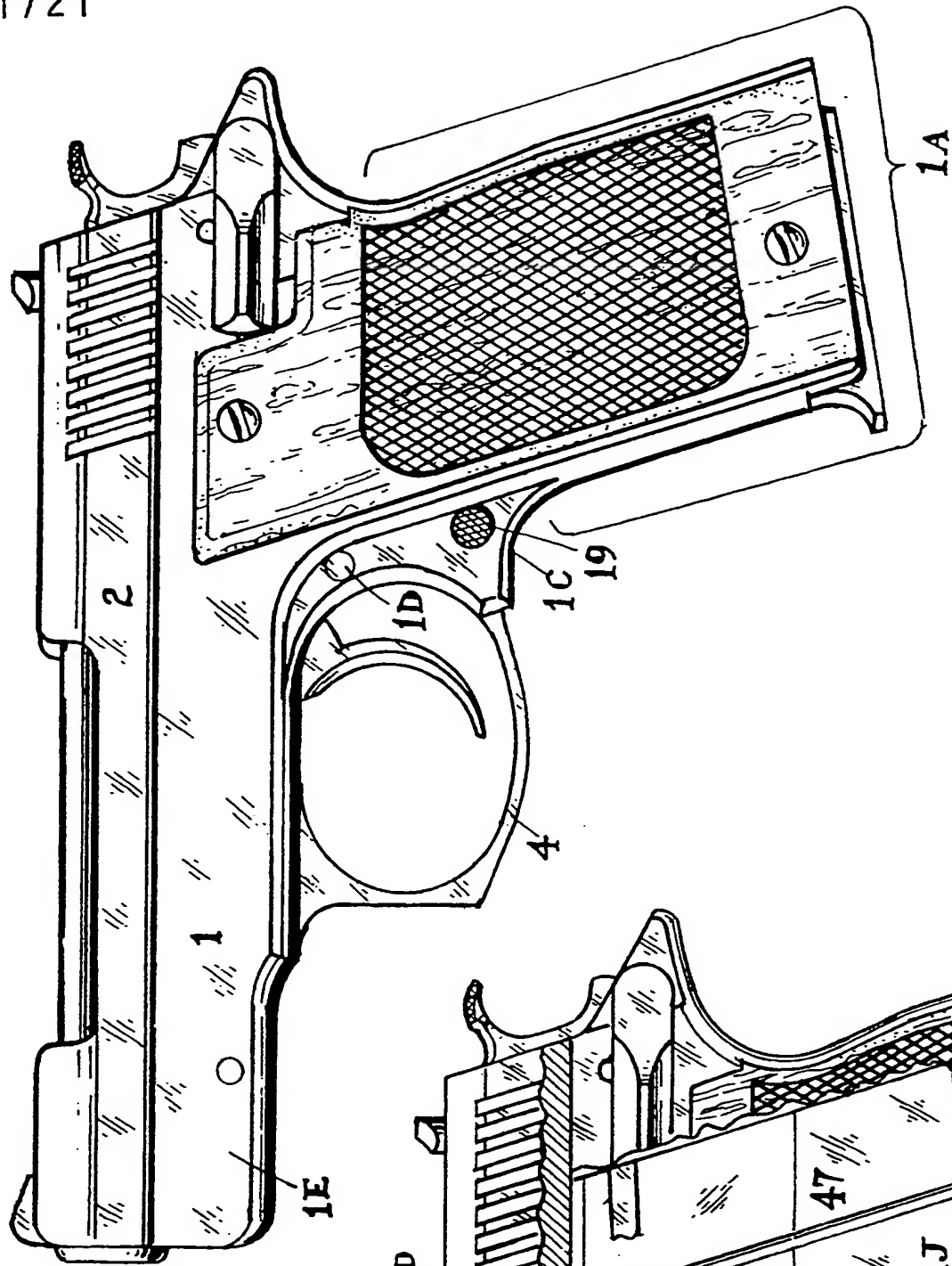


Fig. 3

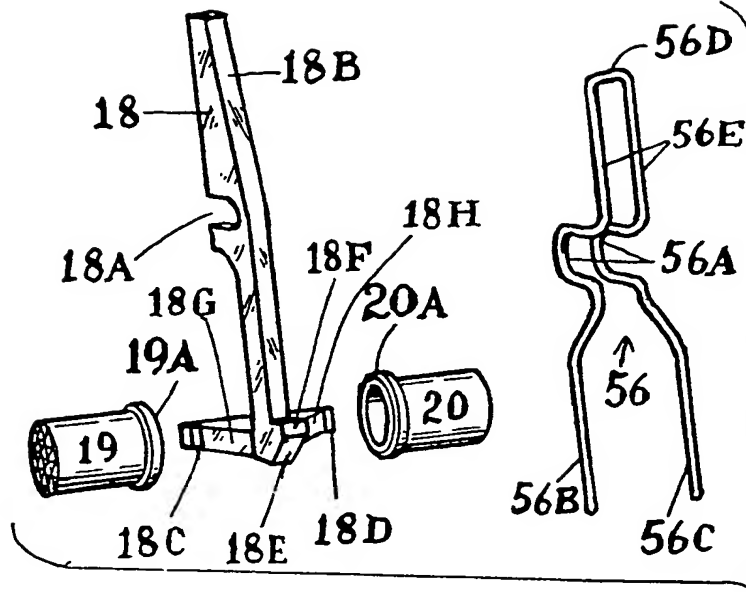


Fig. 4

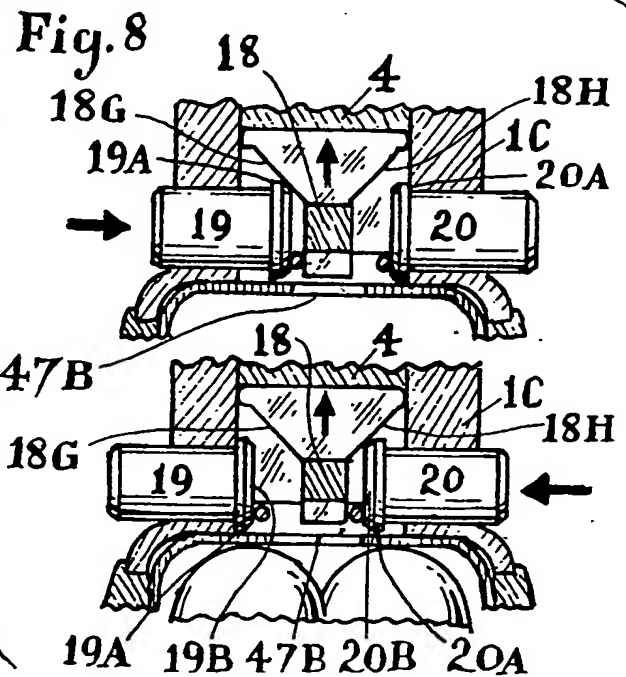
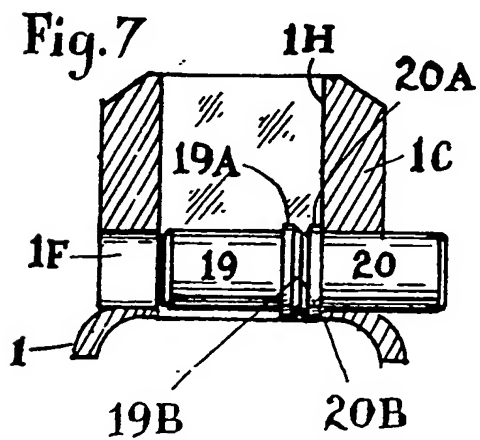
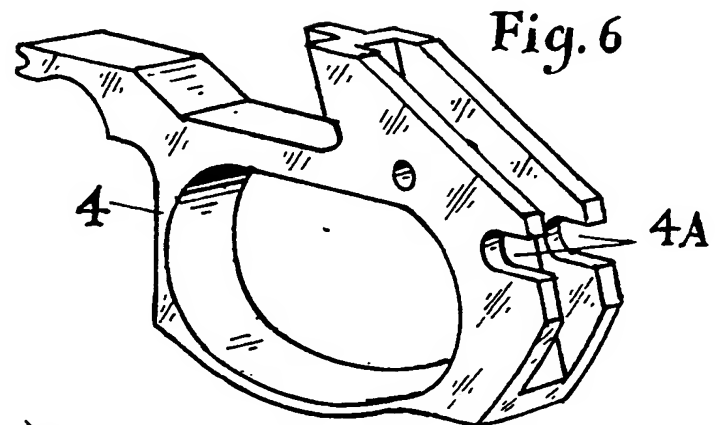
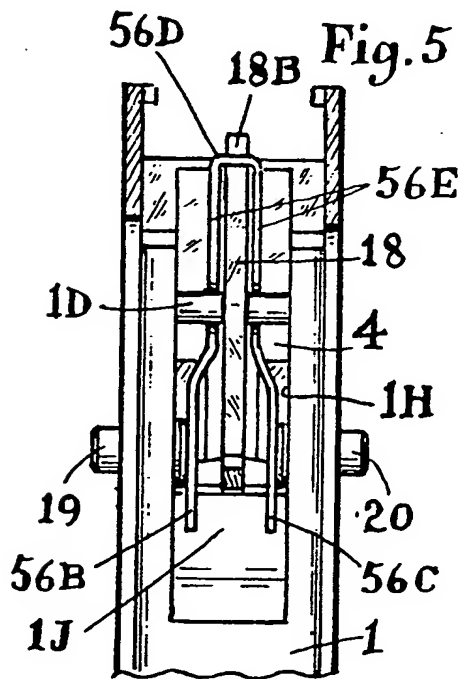
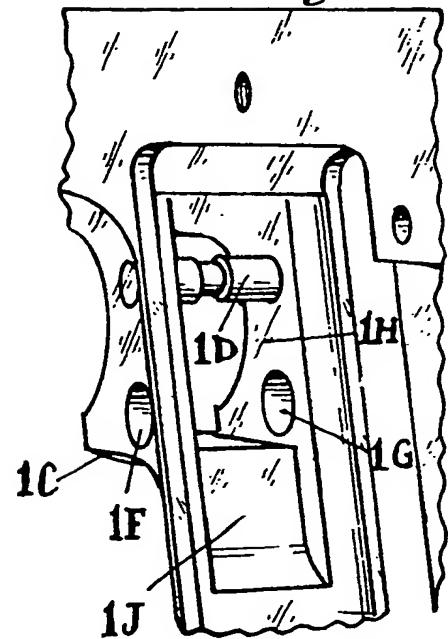


Fig. 9

